Tucker ENERGY SERVICES

COMPENSATED NEUTRON

PEL DENSITY MICRO LOG

Company LASSO ENERGY LLC
Well RENICK #2
Field WILDCAT
County GRAY
State KANSAS
Country USA
API No. 15-069-20460-00-00

File No : TUL-59478
Company : LASSO ENERGY LLC
Well : RENICK #2
Field : WILDCAT
County : GRAY
State : KANSAS
Country : USA
API No : 15-069-20460-00-00

Location :
680' FNL & 1960' FEL
NW SE NW NE

LSD : **Sect :** 19 **Twp :** 25 S **Rge :** 29 W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	2822.00 Ft	CNT	MST
Log Measured From:	KB	**DF**	2821.00 Ft	LDT	WOT
Above Permanent Datum:	8.00 Ft	**GL**	2814.00 Ft	XYT	PIT

Date	03-03-2014			
Run Number	1			
Depth--Driller	5205.0 Ft			
Depth--Logger	5206.0 Ft			
First Reading	5177.0 Ft			
Last Reading	4050.0 Ft			
Casing--Driller	1785.0 Ft			
Casing--Logger	1790.0 Ft			
Bit Size	7.875 In			
Casing Size	8.625 In			
Hole Fluid Type	GEL / CHEMICAL			
Density	8.8 LBS/GAL			
Fluid Loss	13.2 CC			
PH/Viscosity	11.0	49.0 SEC		
Sample Source	MEASURED			
RM@Measured Temp.	0.300 @ 44 F			
RMF@Measured Temp	0.264 @ 44 F			
RMC@Measured Temp.	0.363 @ 44 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	0.129 @ 111 F			
Time Circulation Stopped	03-03-2014 7:00 pm			
Max Recorded Temp.	111 F			
Equipment/Base	TRUCK 127	TULSA		
Recorded By	R. KING			
Witnessed By	M. BURTON			

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	24.00	1785.00	0.00

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	5205.00

Run Number	1
Date	03-03-2014
Date/Time On Bottom	03-04-2014 1:15 am
Depth to Fluid	0.0 Ft
Salinity	13600.000 PPM
RMF@BHT	0.114 @ 111 F
RMC@BHT	0.156 @ 111 F

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, NAV AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON X-Y AXIS.
2.71 G/CC USED TO CALCULATED POROSITY.
ANNULAR HOLE VOLUME CALCULATED UISING 5.5" PRODUCTION CASING.
PHIN IS CALIPER CORRECTED.

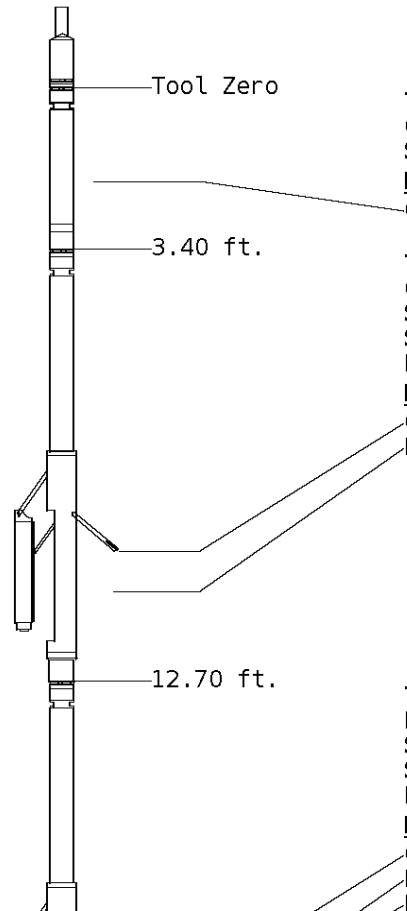
MAGNETIC DECLINATION: 5.98 DEG.

GRT: GRP
CNT: PHIN, CLCNIN
LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN
MLT: NOR_RF, INV_RF, MSCLPIN.
NAV: CALIBRATED_WOT_AE, WOT_AE_NAVAGATION
PIT: EIRMDS, VIRDDS, SPU, SFLAEC, CIRD.

OPERATORS:
C. GONZALES
A.DJAHO

Tool String Schematic

Total Tool Length - 58.84 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 1031.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BB-006

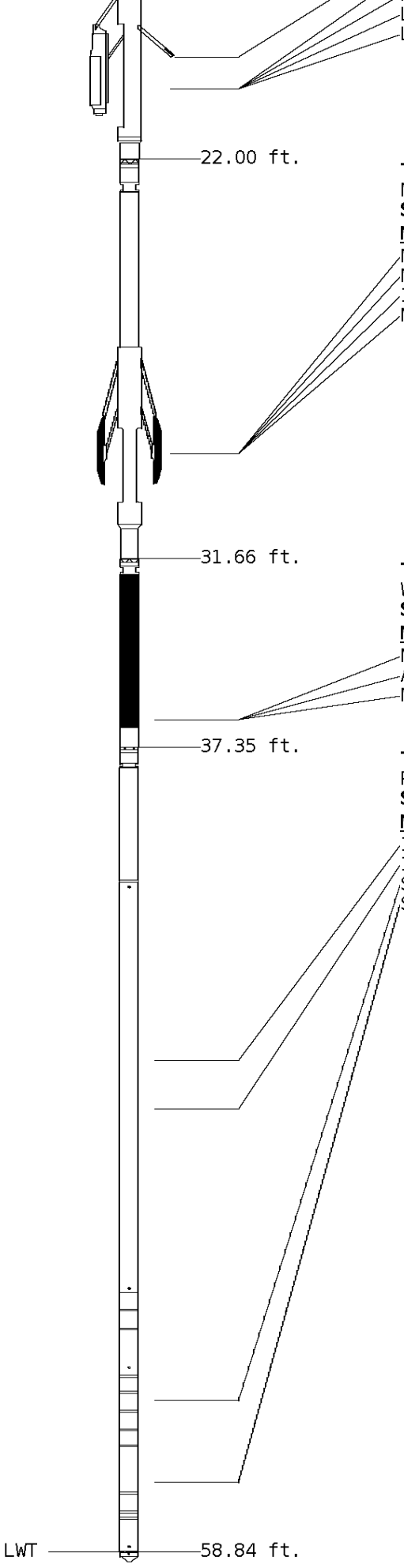
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	56.84

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BB-038
Source ID :N-1044
Pad ID :CNP-AA-121

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	49.44
PHIN	6.80	10.20	48.64

Tool: LDT-DA **Length:** 9.30 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-A
Sonde ID :NDT-AE-003
Source ID :CSV-587
Pad ID :LDP-DA-50

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.00	18.70	40.14
PEL	7.00	19.70	39.14
PES	7.40	20.10	38.74



LDEN	7.20	19.90	38.94
LCOR	7.20	19.90	38.94

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC)
Sonde ID :MST-DA-28

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	29.60	29.24
MSCLP	7.60	29.60	29.24
INV	7.60	29.60	29.24
NOR	7.60	29.60	29.24

Tool: WOT-AA **Length:** 5.69 **ft.** **O.D.** 3.50 **in.**
Well Orientation Tool
Sonde ID :WGT-001

Measure Point	Tool Offset	Stack Offset	Bottom Offset
NAVTEMP	3.00	34.66	24.18
ACCX, ACCY, ACCZ	3.00	34.66	24.18
MAGX, MAGY, MAGZ	3.00	34.66	24.18

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-BA-20

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	46.27	12.56
ILM	10.10	47.45	11.39
SFLU	17.49	54.84	4.00
SP	20.60	57.95	0.88

Reference: 0 **Processed:** 2014-03/04 03:45 3.3.0-12664

CALIPER MICRO
INCHES (IN)
16 26
6 16

BIT SIZE
INCHES (IN)
6 16

NEUTRON (Y) CALIPER
INCHES (IN)
16 26
6 16

NORMAL
OHMM
0 40

INVERSE
OHMM
0 40

DENSITY (X) CALIPER
INCHES (IN)
16 26
6 16

Volume
Quartz

PE CROSS-SECTION
BARNS/ELECTRON
0 10

DENSITY CORRECTION
G/CC
-0.25 0.25

TENSION
LBS
10000 0

Volume
Calcite

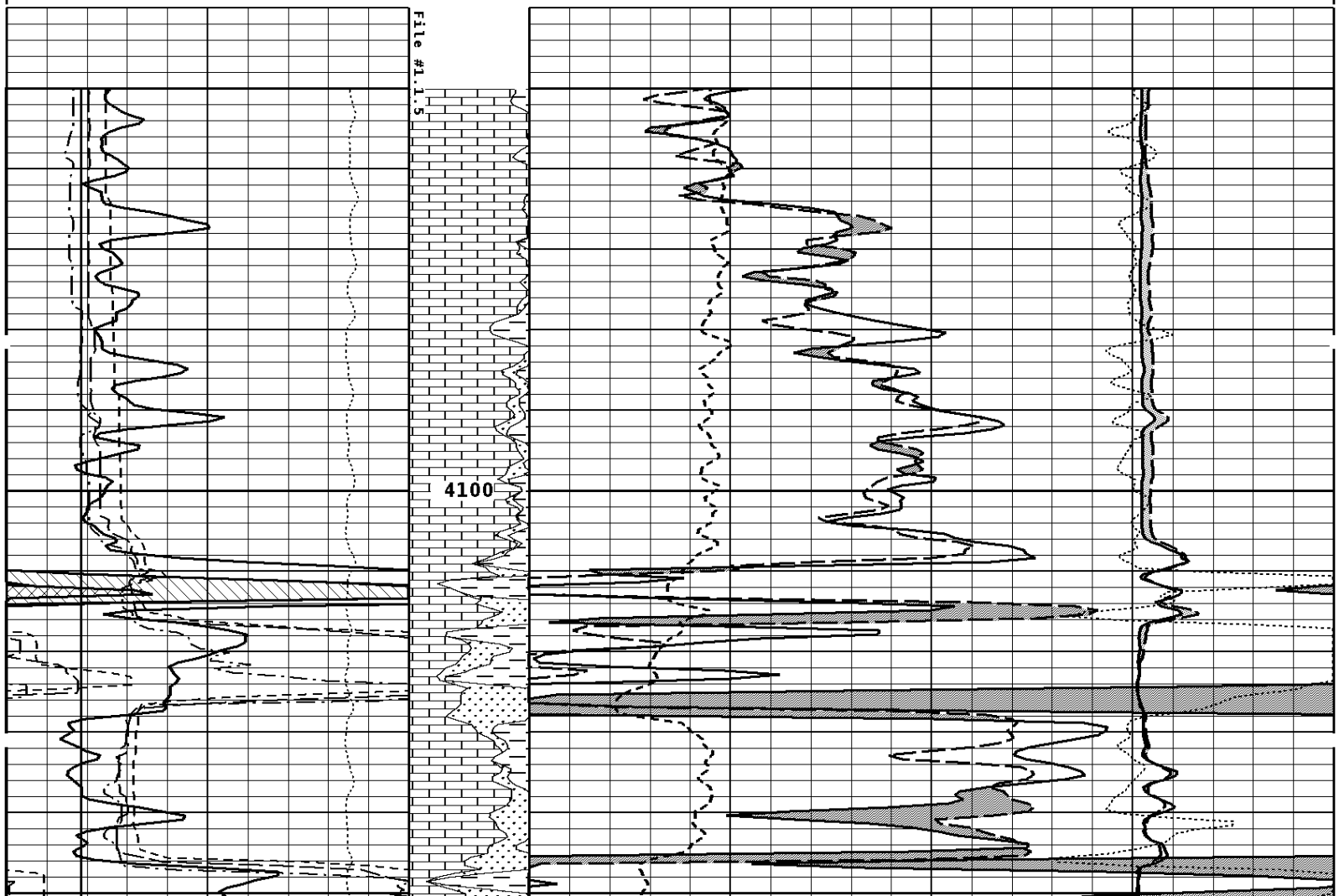
DENSITY POROSITY (2.71g/cc)
PERCENT
70 30
30 -10
-10 -50

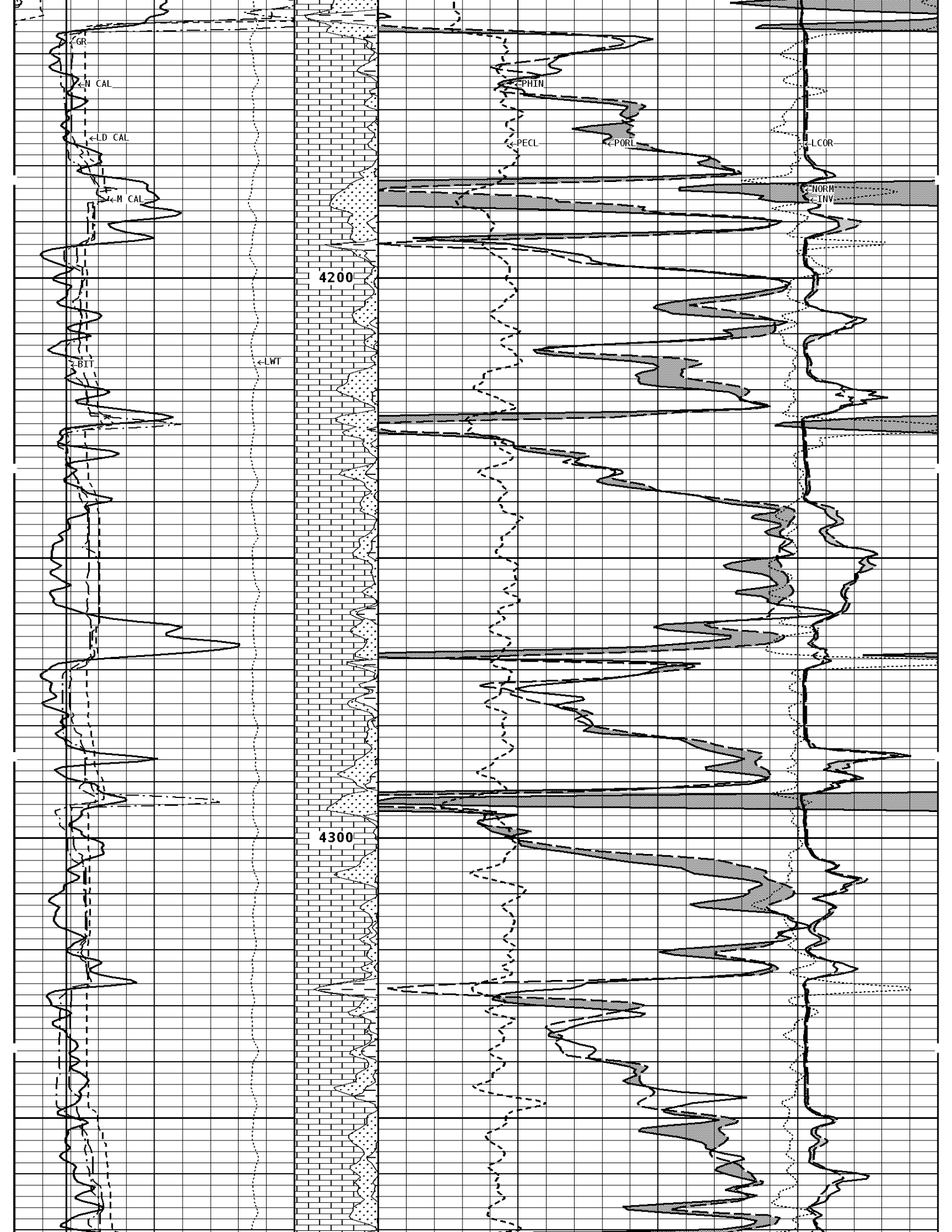
GAMMA RAY
API UNITS
150 300
0 150

Volume
Dolo/Shale

NEUTRON POROSITY (LIMESTONE)
PERCENT
30 -10

1:240 MAIN SECTION

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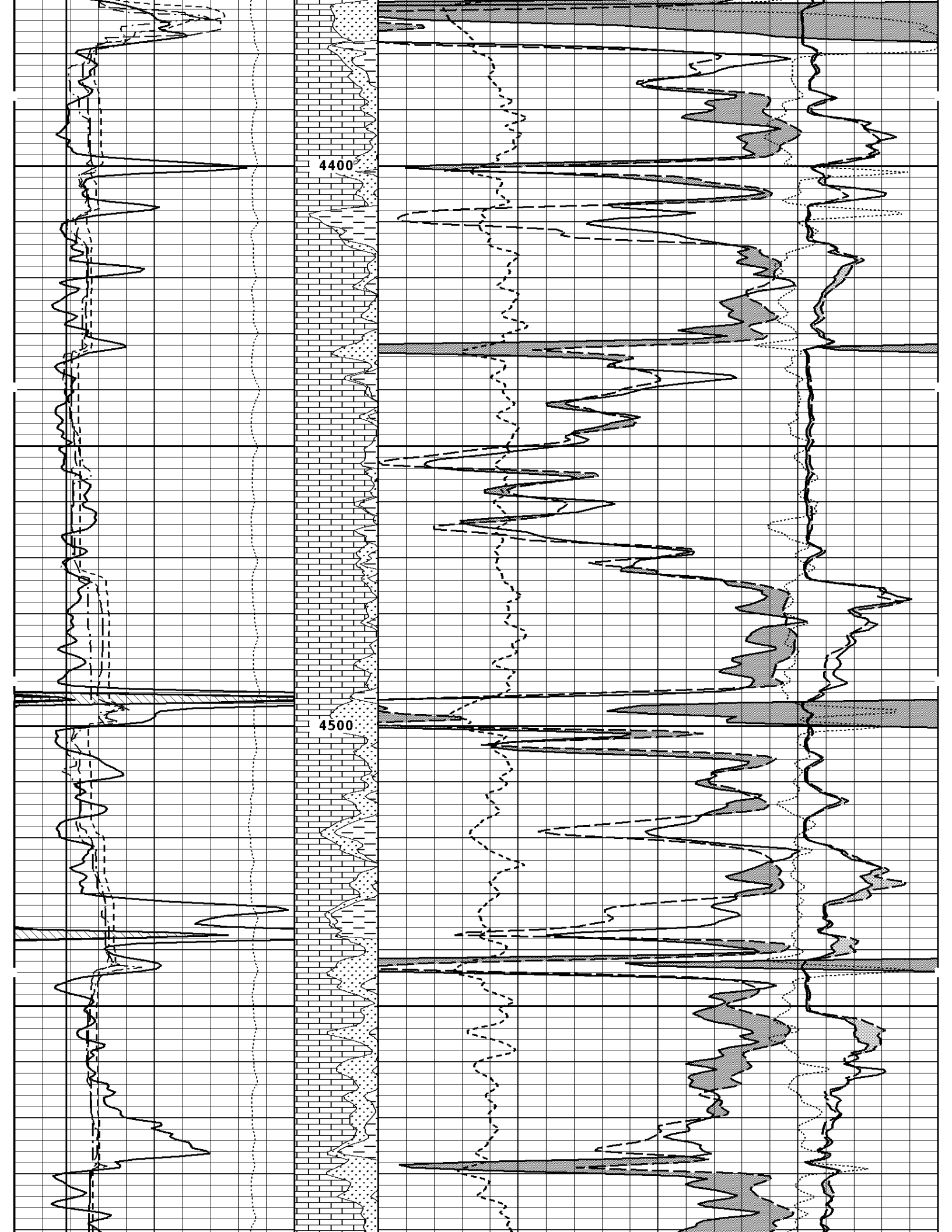
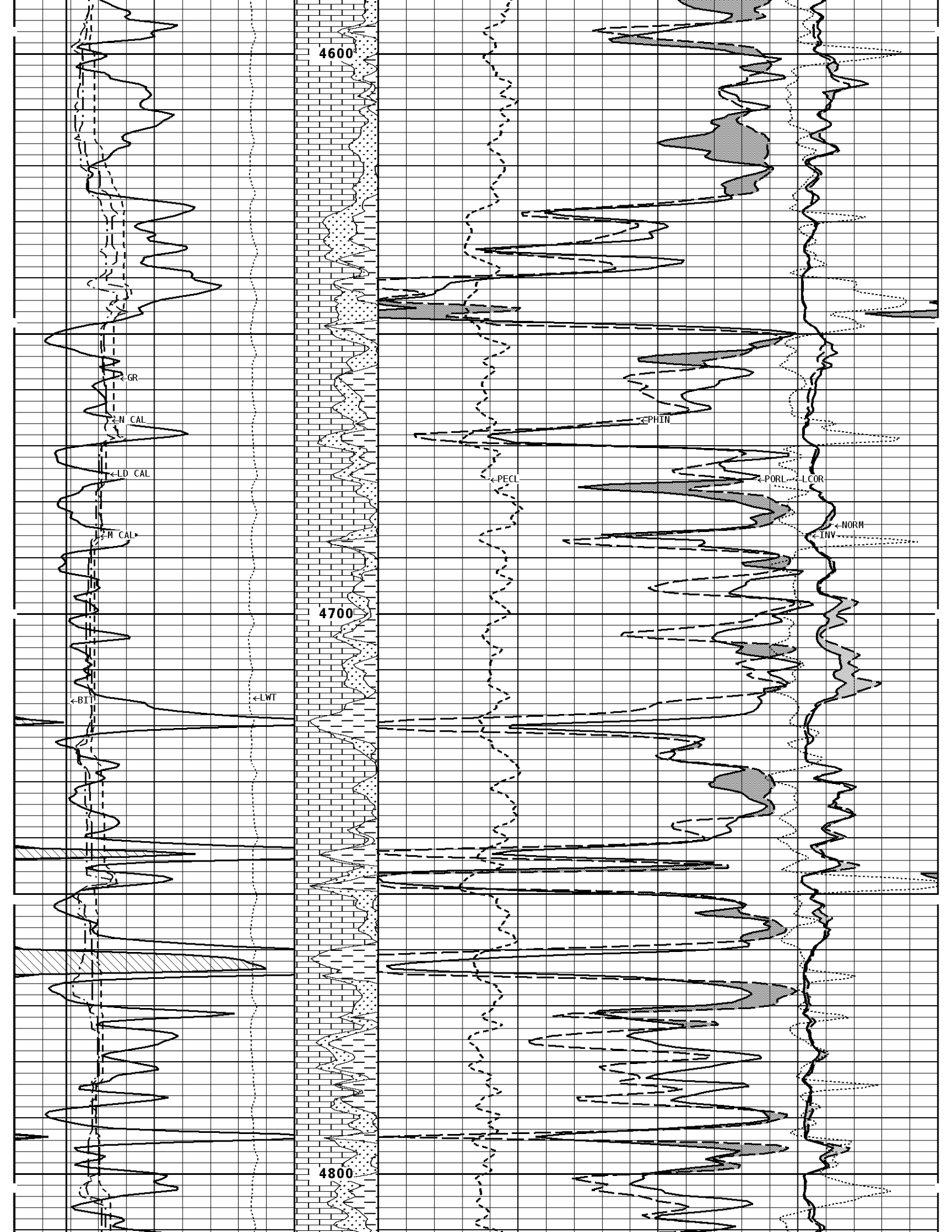
N CAL
LD CAL
M CAL
BIT
LWT
PHIN
PECL
PORL
LCOR
NORM
INV
4200
4300


4400
4500


4600
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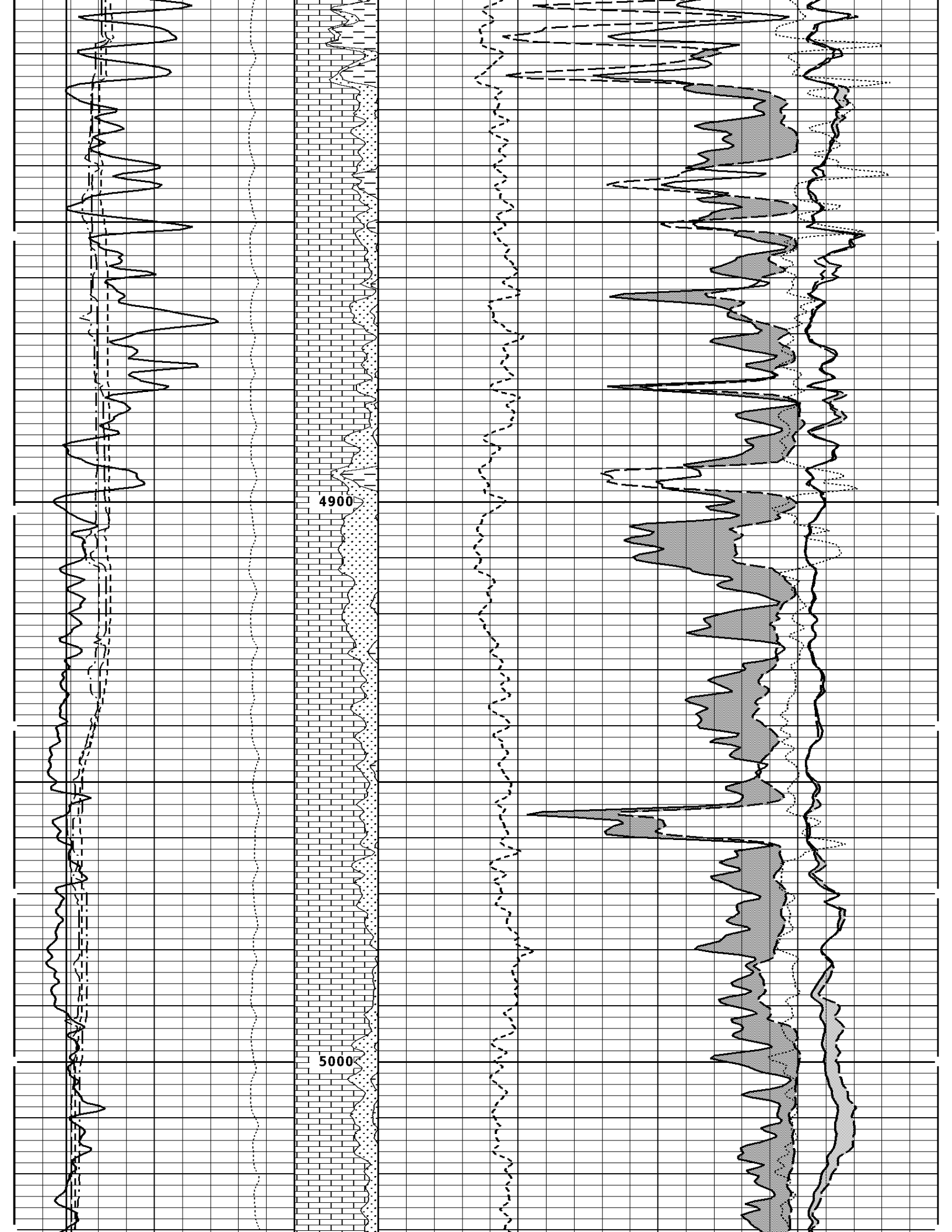
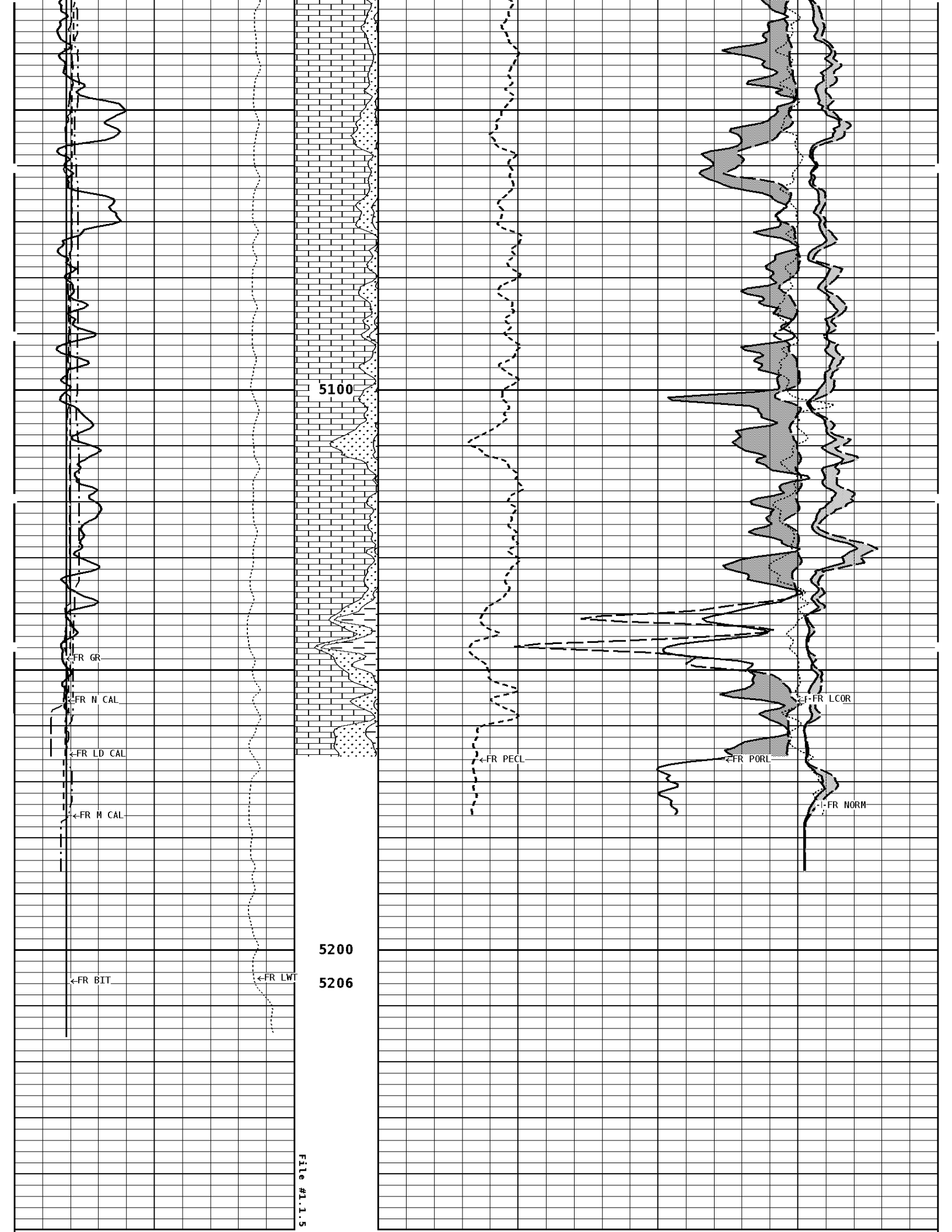
N CAL
LD CAL
M CAL
PHIN
PECL
PORL
LCOR
NORM
INV
4700
BIT
LWT
4800


4900
5000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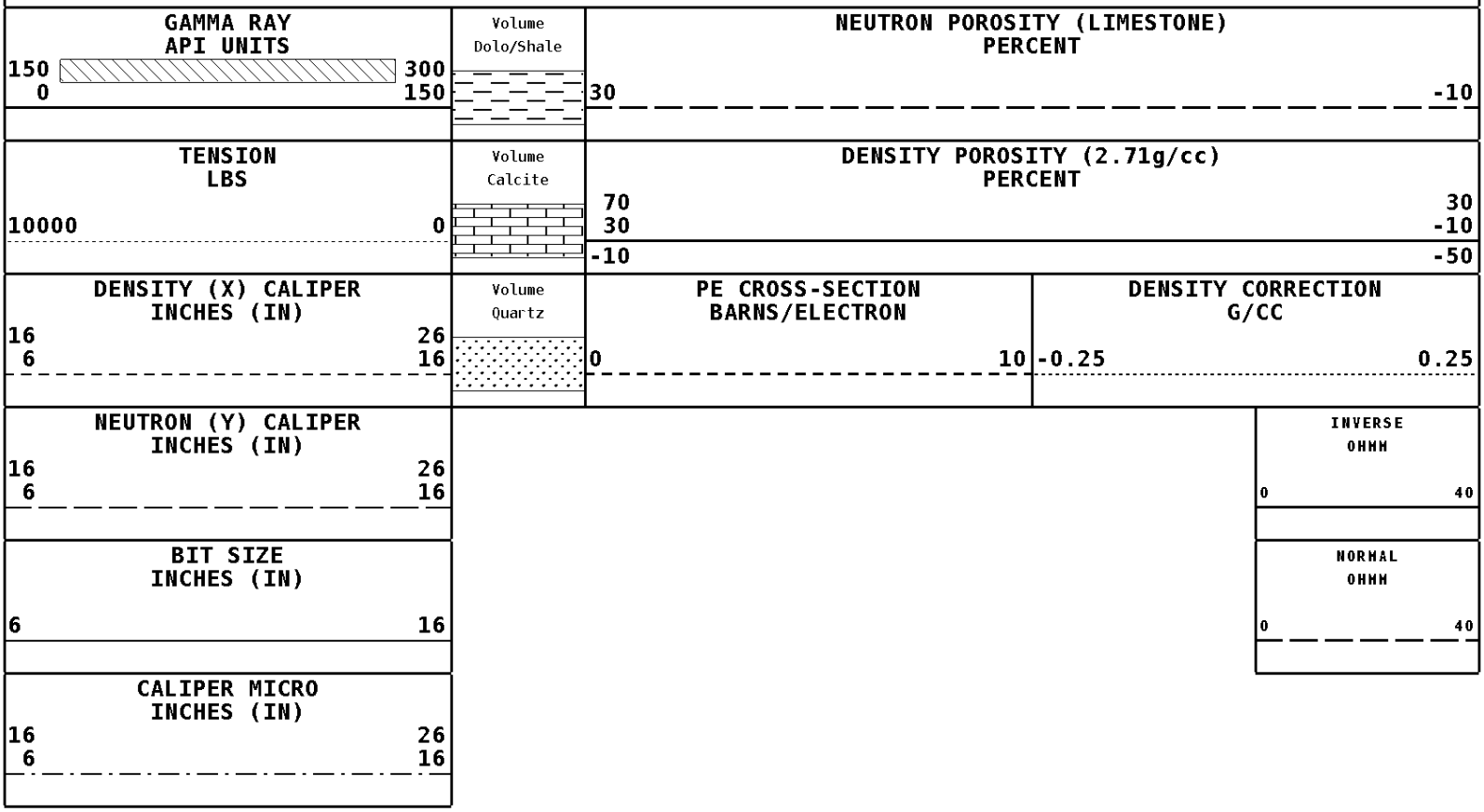
←FR GR
←FR N CAL
←FR LD CAL
←FR M CAL
←FR BIT
←FR LWT
5200
5206
←FR PECL
←FR PORL
←FR LCOR
←FR NORM
File #1.1.5

1:240 MAIN SECTION

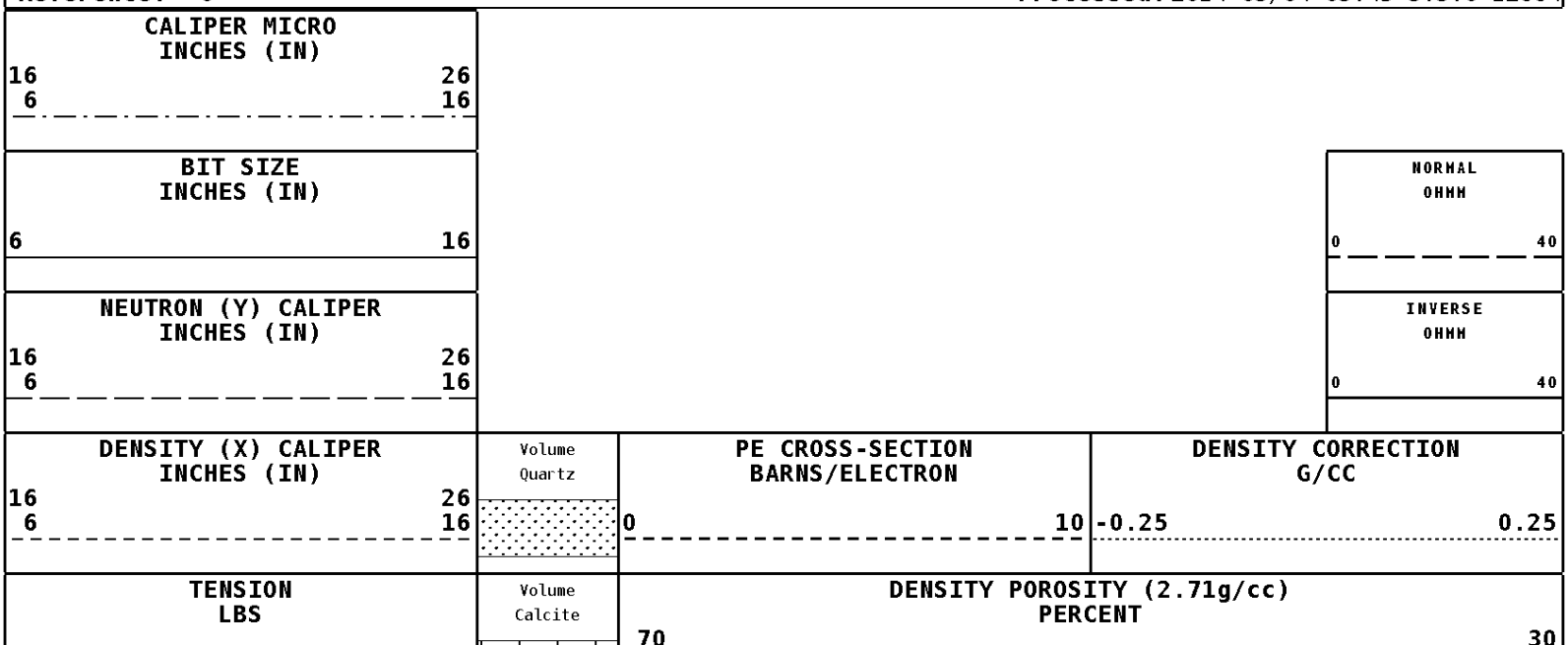


*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	

Well File: LASSO_RENICK2_MAR3-MSTK-WOT **Scale:** 1:240 **Format:** NLD-240
Segment: V1.D1.S4 REPEAT-RPO **Acquired:** 2014-03/04 01:17 3.3.0-12664
Reference: 0 **Processed:** 2014-03/04 03:45 3.3.0-12664



10000 0

30 -10

-10 -50

GAMMA RAY
API UNITS

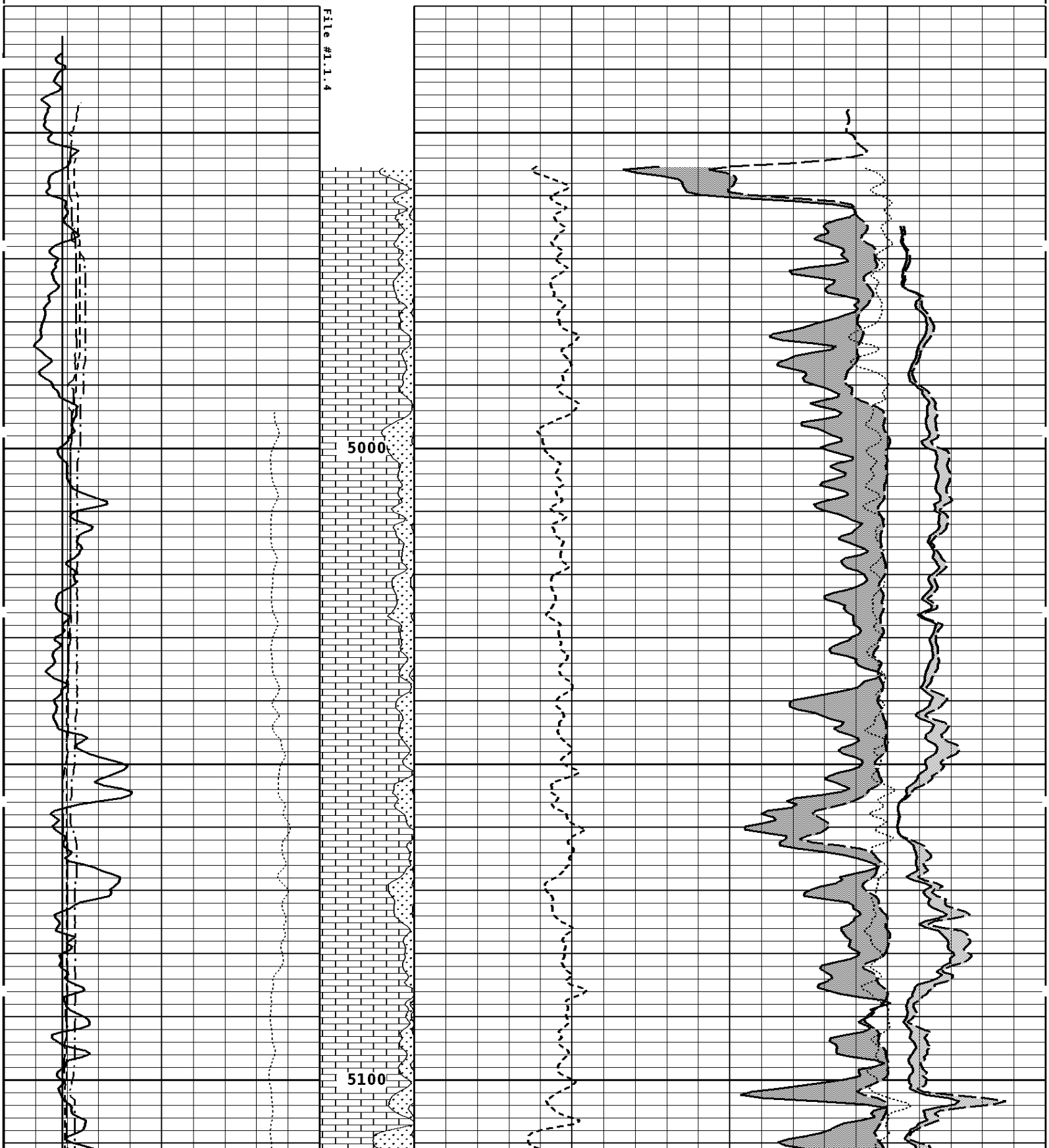
150 300
0 150

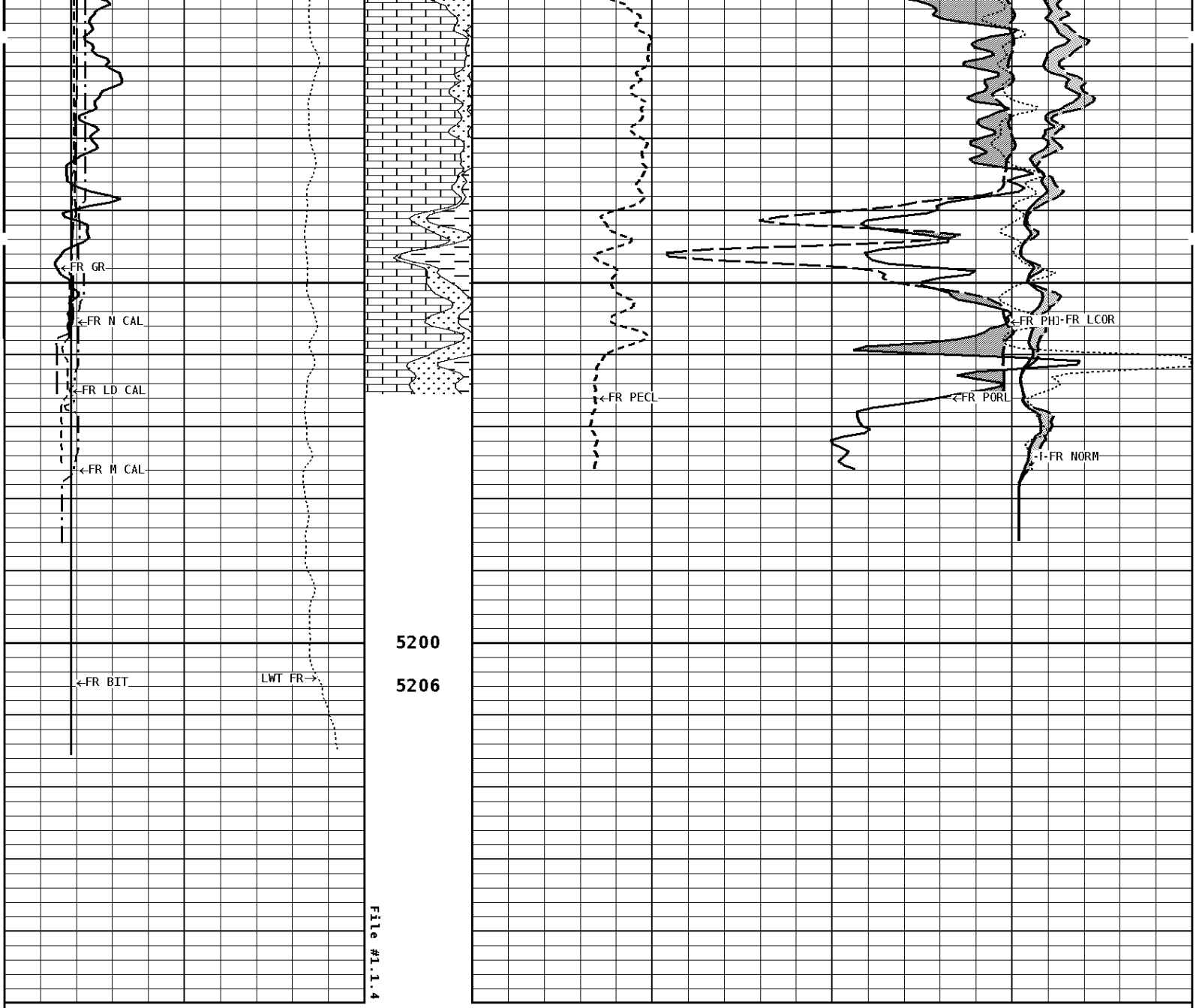
Volume
Dolo/Shale

NEUTRON POROSITY (LIMESTONE)
PERCENT

30 -10

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY API UNITS	Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150		30 -10
TENSION LBS	**Volume Calcite**	**DENSITY POROSITY (2.71g/cc) PERCENT**
10000 0		70 30 30 -10 -10 -50
DENSITY (X) CALIPER INCHES (IN)	**Volume Quartz**	**PE CROSS-SECTION BARNS/ELECTRON** / **DENSITY CORRECTION G/CC**
16 26 6 16		0 10 / -0.25 0.25
NEUTRON (Y) CALIPER INCHES (IN)		**INVERSE OHMM**
16 26 6 16		0 40
BIT SIZE INCHES (IN)		**NORMAL OHMM**

6	16

0	40

CALIPER MICRO
INCHES (IN)

16	26
6	16

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	

Well File: LASSO_RENICK2_MAR3-MSTK-WOT **Scale:** 1:240 **Format:** LDT-240
Segment: V1.D1.S5 MAIN-RPO **Acquired:** 2014-03-04 01:32 3.3.0-12664
Reference: 0 **Processed:** 2014-03-04 03:45 3.3.0-12664

BIT SIZE
INCHES (IN)

6	16

NEUTRON (Y) CALIPER
INCHES (IN)

16	26
6	16

DENSITY (X) CALIPER
INCHES (IN)

16	26
6	16

PE CROSS-SECTION
BARNS/ELECTRON

0	10

DENSITY CORRECTION
G/CC

-0.25	0.25

TENSION
LBS

10000	0

COMPENSATED BULK DENSITY
G/CC

3.0	4.0
2.0	3.0
1.0	2.0

GAMMA RAY
API UNITS

150	300
0	150

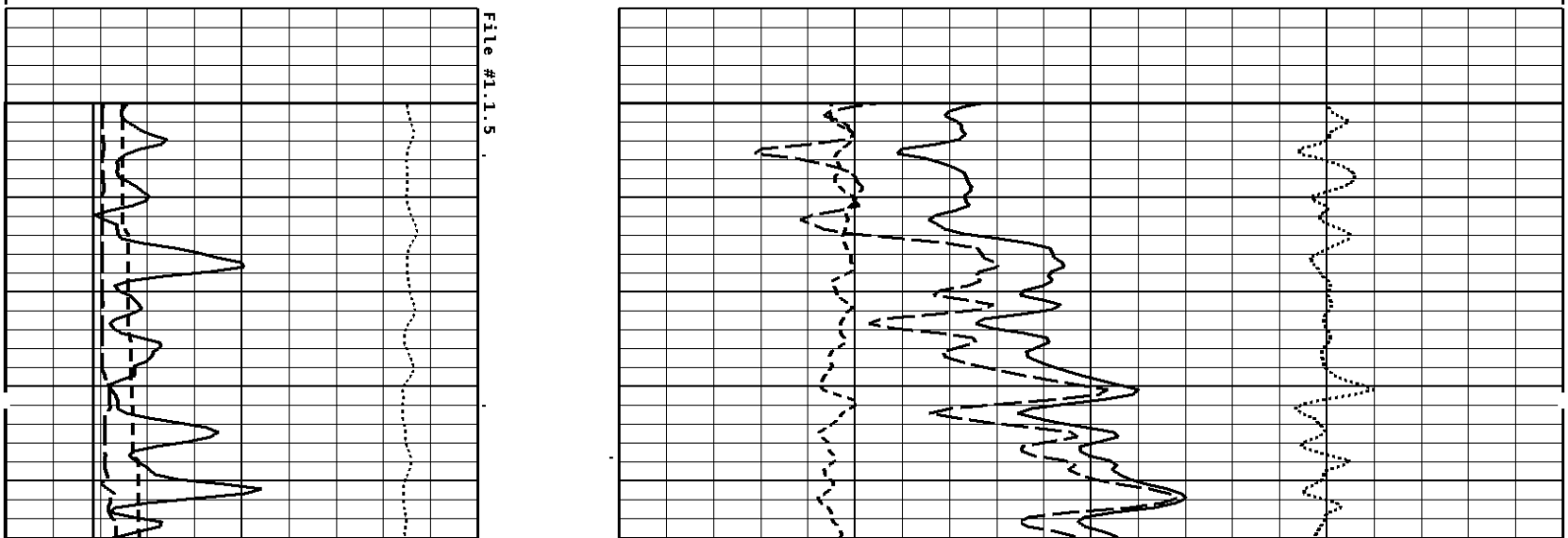
-BHV AHV-
CU.FT

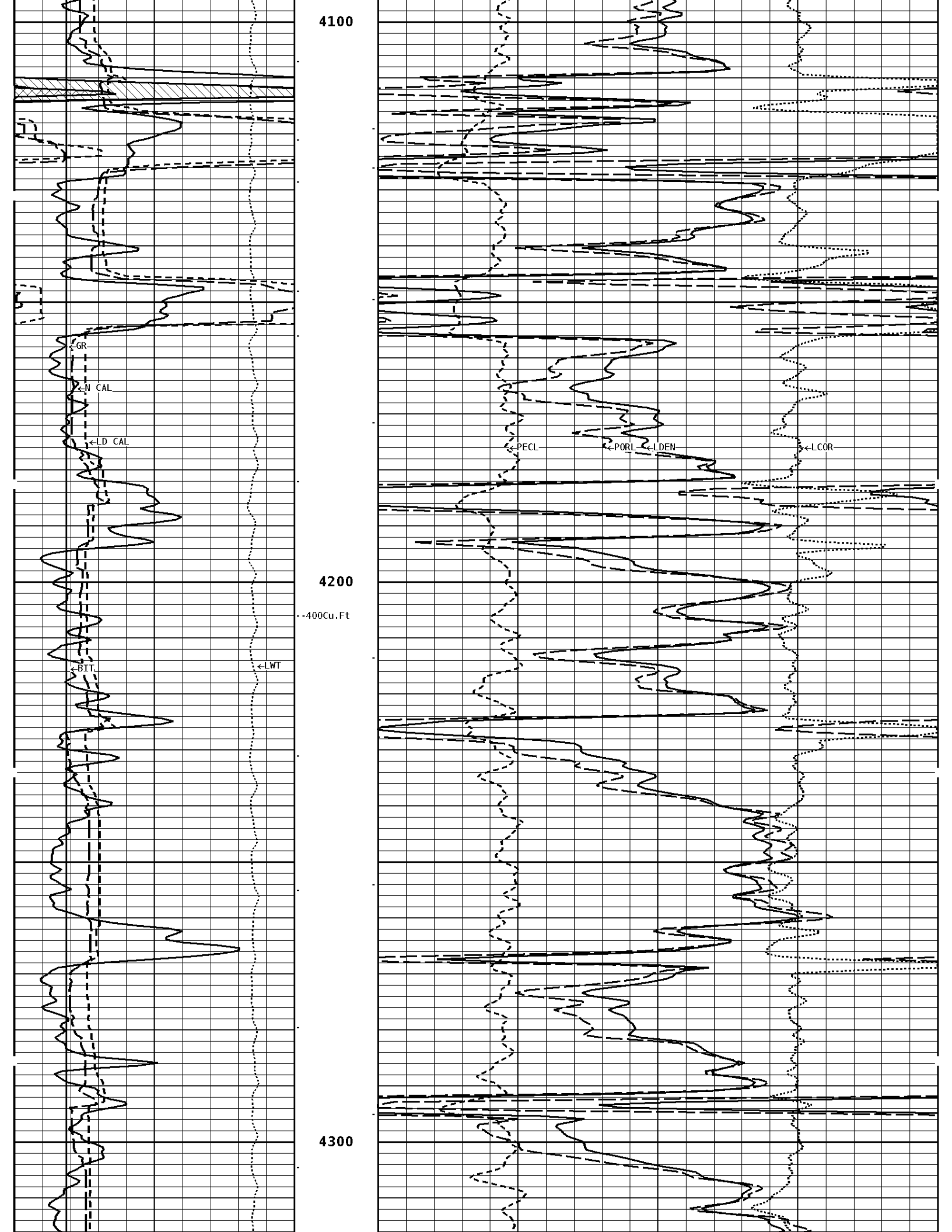
DENSITY POROSITY (2.71g/cc)
PERCENT

70	30
30	-10
-10	-50

1:240 MAIN SECTION

BULK DENSITY

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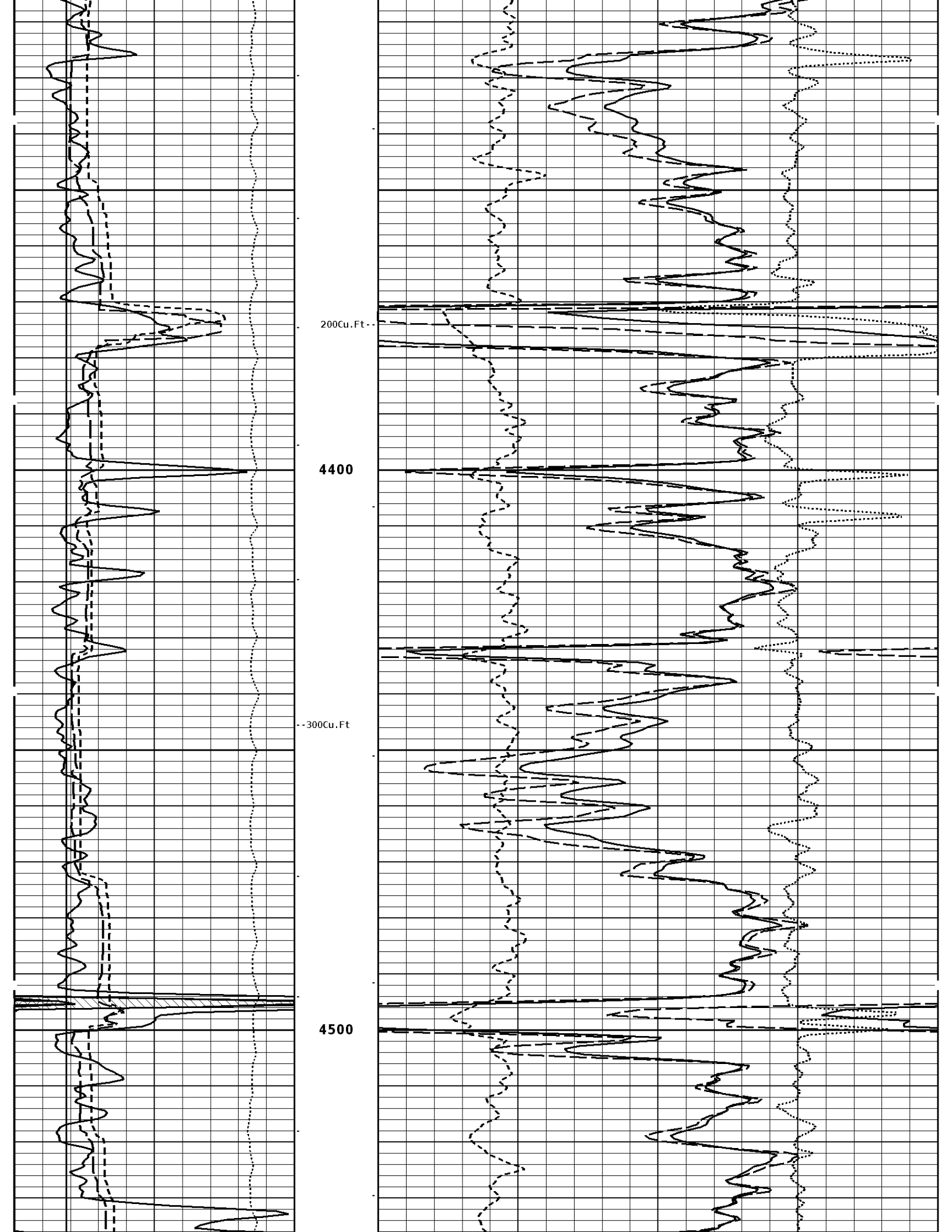
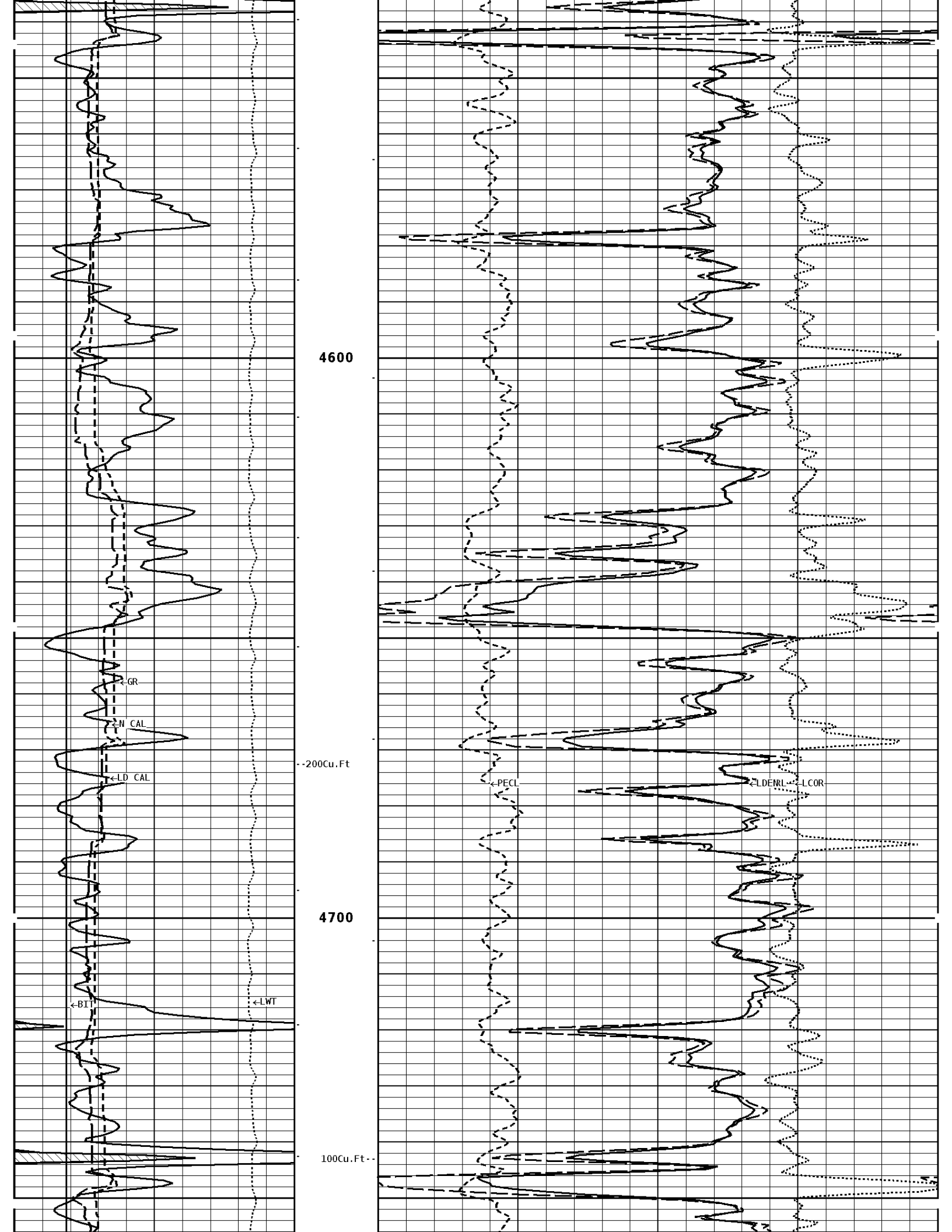
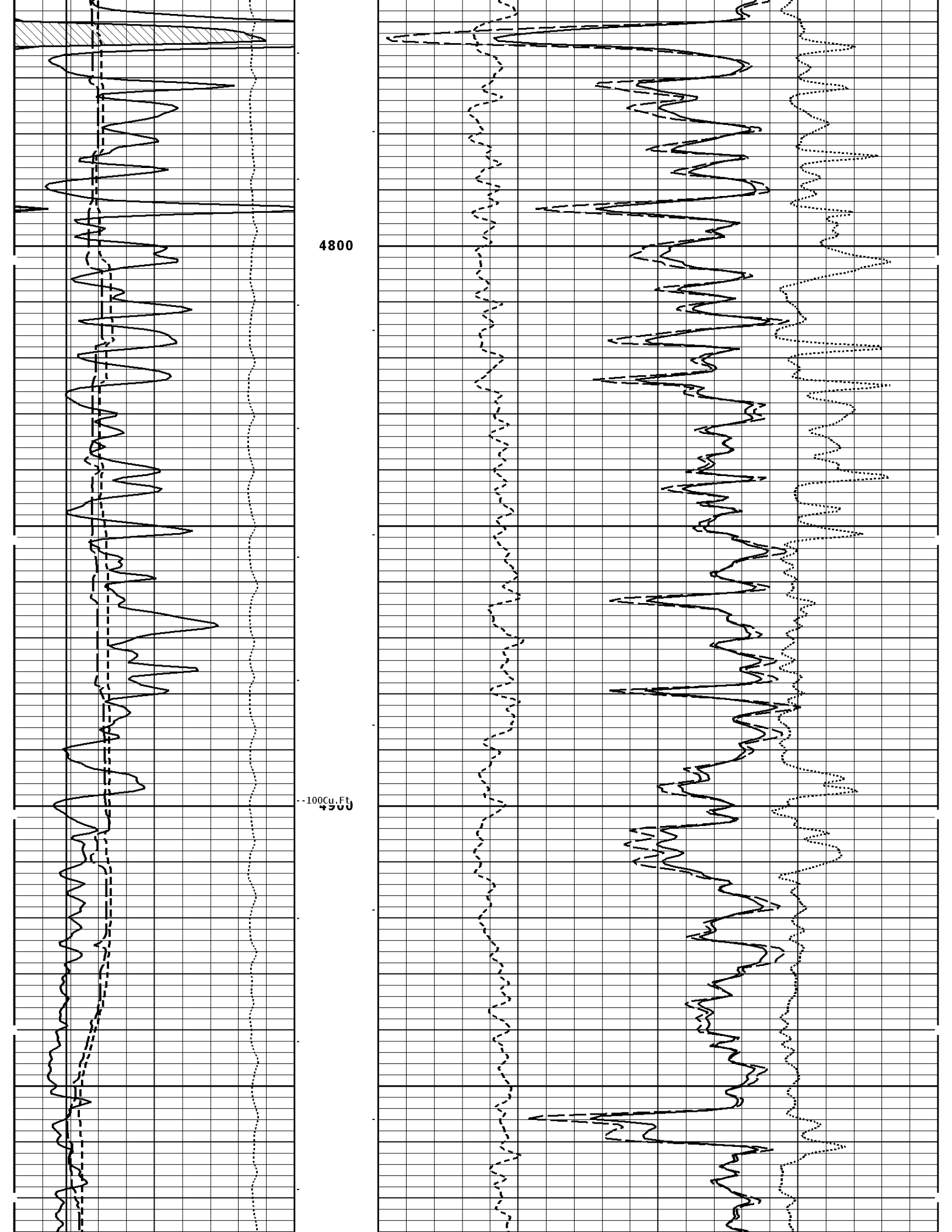
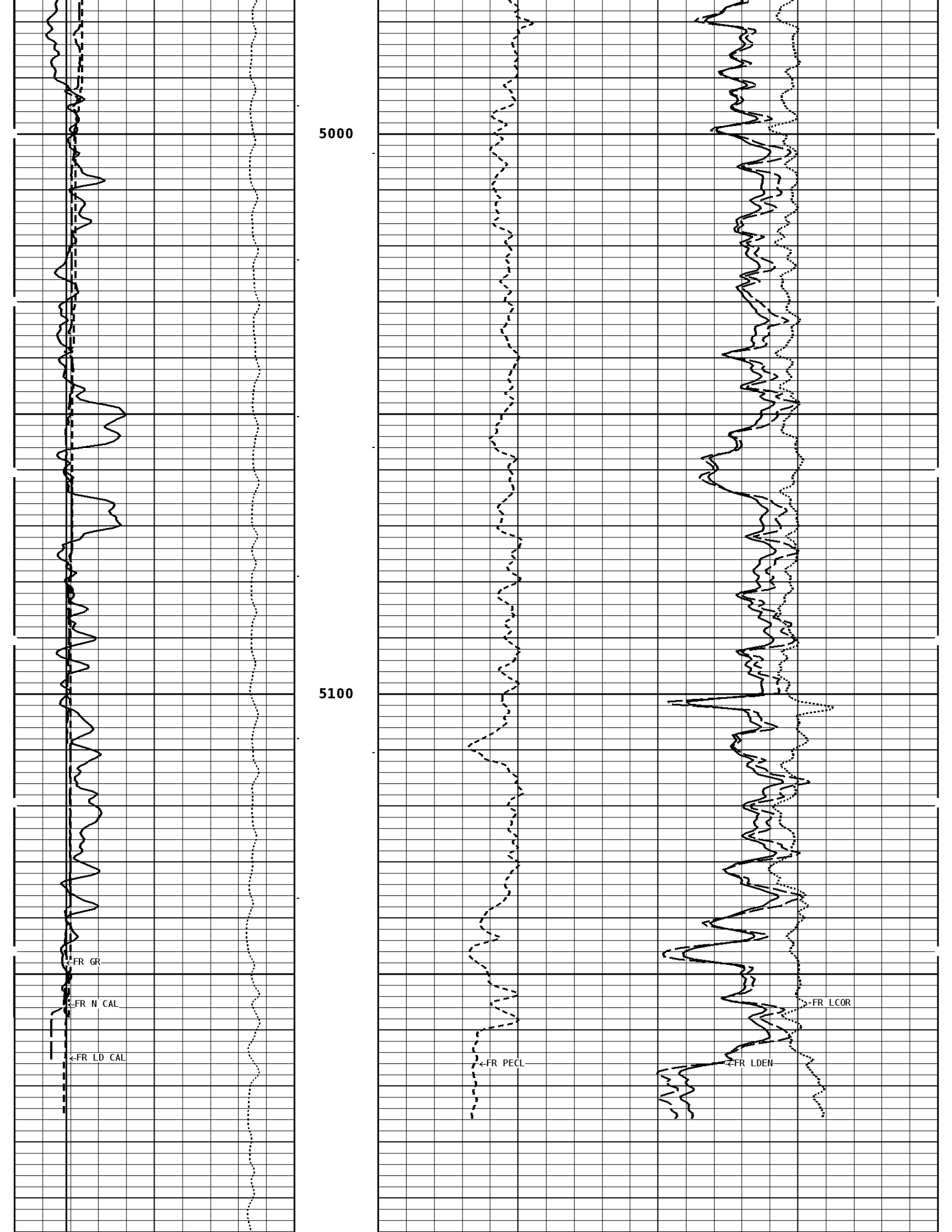
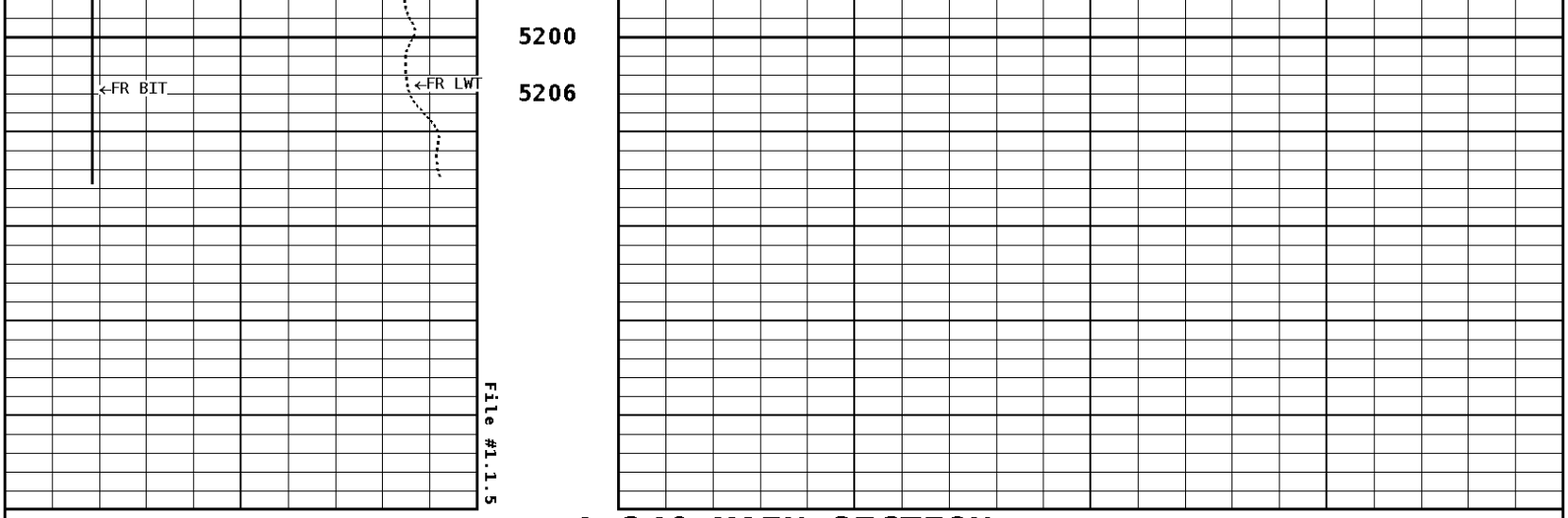
GR
N CAL
LD CAL
PECL
PORL
LDEN
LCOR
4200
--400Cu.Ft
BIT
LWT
4300


200Cu.Ft
4400
300Cu.Ft
4500


4600
GR
N CAL
LD CAL
200Cu.Ft
PECL
LDENRL
LCOR
4700
BIT
LWT
100Cu.Ft


4800
100Cu.Ft
4900


5000
5100
FR GR
FR N CAL
FR LD CAL
FR PECL
FR LCOR
FR LDEN



1:240 MAIN SECTION

BULK DENSITY

GAMMA RAY API UNITS	-BHV AHV- CU.FT	DENSITY POROSITY (2.71g/cc) PERCENT
150 300		70 30
0 150		30 -10
		-10 -50

TENSION LBS	COMPENSATED BULK DENSITY G/CC
10000 0	3.0 4.0
	2.0 3.0
	1.0 2.0

DENSITY (X) CALIPER INCHES (IN)	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16 26	0 10	-0.25 0.25
6 16		

NEUTRON (Y) CALIPER INCHES (IN)
16 26
6 16

BIT SIZE INCHES (IN)
6 16

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Correction (PHI N)	Disable	

*** Calibration Summary ***

Shop Calibration
GRT-B

Performed : 23-Jan-2014 Time : 11:12
Sensor Suite : GR-GR5 ID : GRT-BB-006

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	62	374	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 23-Jan-2014 Time : 11:07

Sensor Suite : CALI-BCN ID : NDT-BB-038

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	8.6	14.0	6.0	12.0	IN.

Performed : 23-Jan-2014 Time : 10:58
Sensor Suite : BHC NEUT ID : CNP-AA-121
Source ID : N-1044

	Tank Measured	Calibrated	Verification Jig	Units
N/F	3.8388	3.6893	3.6950	
Porosity	22.8	20.5	20.6	%

Shop Calibration
LDT-DA

Performed : 23-Jan-2014 Time : 10:36
Sensor Suite : CALI-LTH ID : NDT-AE-003

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	9.4	14.0	6.0	12.0	IN.

Performed : 23-Jan-2014 Time : 10:27
Sensor Suite : BHCPELNG ID : LDP-DA-50
Source ID : CSV-587

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	73	446	778	310	CPS
LSW2	75	530	862	396	CPS
LSW3	286	1307	2004	1137	CPS
LSW4	350	1247	1651	1124	CPS
LSW5	33	41	39	39	CPS
LSW6	96	97	92	97	CPS
LSW7	56	60	55	60	CPS
LSW8	1	2	2	2	CPS
QS	0.262	0.235	0.250	0.235	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	106	520	2287	342	CPS
LLW2	117	882	3586	657	CPS
LLW3	436	1777	6285	1571	CPS
LLW4	560	1082	2611	1014	CPS
LLW5	65	70	79	68	CPS
LLW6	171	174	149	171	CPS
LLW7	114	111	111	115	CPS
LLW8	4	6	12	5	CPS
QL	0.199	0.220	0.148	0.198	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 19-Feb-2014 Time : 09:54
Sensor Suite : CALI-MSN ID : MST-DA-28

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	7.2	11.5	6.0	12.0	IN.

Performed : 19-Feb-2014 Time : 10:01
Sensor Suite : MSTDA-NI ID : MST-DA-28

Internal

	Measured Zero	Reference	Units	Calibrated Zero	Reference	Units
INV-V	0.0	29139.4		0.00	1546.00	MV
NOR-V	0.5	29707.3		0.00	1546.00	MV
IN-C	0.0	60082.3		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Performed : 19-Feb-2014 Time : 10:03
Sensor Suite : MSTDAMSF ID : MST-DA-28

Internal

	Measured Zero	Reference	Units	Calibrated Zero	Reference	Units
MSFC	33.5	60303.2		0.00	1522.00	UA

MSFB	32763.0	63839.5	0.00	1522.00	MA
MOM1	0.0	59799.0	0.00	1522.00	MV
MSFRA				43.30	OHMM

Tucker ENERGY SERVICES

Company: LASSO ENERGY LLC

Well: RENICK #2

Location: 680' FNL & 1960' FEL

Logged: 03-03-2014

K.B. Elev: 2822.0 Ft